Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC

In the Matter of Inquiry Concerning the Deployment of Advanced Telecommunications Capability to All Americans in a Reasonable and Timely Fashion, and Possible Steps to Accelerate Such Deployment Pursuant to Section 706 of the Telecommunications Act of 1996, as Amended by the Broadband Data Improvement Act	)	GN Docket No. 16-245

COMMENTS OF THE FIBER TO THE HOME COUNCIL AMERICAS ON THE TWELFTH BROADBAND PROGRESS NOTICE OF INQUIRY

The Fiber to the Home Council Americas ("FTTH Council" or "Council")[1] hereby submits its comments to the Federal Communications Commission ("Commission") in response to the Twelfth Broadband Progress Notice of Inquiry ("Twelfth NOI").[2] In these comments, the

[1] The FTTH Council's mission is to accelerate deployment of all-fiber access networks by demonstrating how fiber-enabled applications and solutions create value for service providers and their customers, promote economic development, and enhance quality of life. The FTTH Council's members represent all areas of the broadband access industry, including telecommunications, computing, networking, system integration, engineering, and content-provider companies, as well as traditional service providers, utilities, and municipalities. As of today, the FTTH Council has more than 300 entities as members. A complete list of FTTH Council members can be found on the organization's website: http://www.ftthcouncil.org.

[2] *See In the Matter of Inquiry Concerning the Deployment of Advanced Telecommunications Capability to All Americans in a Reasonable and Timely Fashion, and Possible Steps to Accelerate Such Deployment Pursuant to Section 706 of the Telecommunications Act of 1996, as Amended by the Broadband Data Improvement Act*, GN Docket No. 16-245, Twelfth Broadband Progress Notice of Inquiry, FCC 16-100 (rel. Aug. 4, 2016) ("Twelfth NOI").

FTTH Council, as with past inquiries, focuses on the definition of Advanced Telecommunications Capability.[3]

INTRODUCTION AND SUMMARY

Since the Commission's last inquiry, consumer demand for higher-performance broadband services has increased significantly, and there is every indication that this trend will continue. In response, broadband service providers have continued to deploy, and in fact have accelerated the pace of deploying, all-fiber (including fiber-to-the-home ("FTTH")) networks in communities across the country. These providers and consumers recognize that only all-fiber networks provide the performance and scalability necessary to meet consumer bandwidth demands far into the future.[4] The Council therefore believes that the Commission should consider all-fiber networks as the touchstone for advanced telecommunications capability and

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[3] *See* Twelfth NOI, ¶ 4.

[4] The Council recognizes that DOCSIS technology enables high-speed broadband service; however, even cable operators understand that the physical transmission medium of coaxial cable will be replaced by fiber because of its superior performance and operational characteristics and are accelerating their deployment of all-fiber infrastructure. Comcast, for instance, announced in February 2016 that its Gigabit Pro service, which delivers fiber-based 2 Gbps speeds, was available in 18 million homes across the U.S. less than one year after Comcast introduced the service. *See* Jon Brodkin, "Comcast 2Gbps fiber available to 18M homes; gigabit cable coming soon," ArsTechnica (Feb. 2, 2016), *available at* http://arstechnica.com/business/2016/02/comcast-2gbps-fiber-available-to-18m-homes-gigabit-cable-coming-soon/. AT&T also noted in a 2015 *ex parte* letter that "FTTP facilitates a better, more compelling set of products, and AT&T expects FTTP to have a longer economic lifespan than FTTN and other prior wireline network technologies. Accordingly . . . AT&T concluded that it needs to invest in FTTP, where it is economically feasible to do so, to meet customer demand and compete with Cable DOCSIS 3.1 and Google Fiber." *See Ex Parte* Letter from Maureen R. Jeffreys, Counsel to AT&T, Inc., to Marlene H. Dortch, Secretary, Federal Communications Commission, MB Docket No. 14-90 (Apr. 21, 2015), *available at* http://apps.fcc.gov/ecfs/document/view?id=60001044286.

urges the Commission to focus on ensuring that all-fiber networks are deployed to all Americans as quickly as possible.

As the market for wireline broadband services continues its transition to all-fiber networks with unlimited bandwidth, the concept of "speed" as a benchmark is becoming an increasingly outdated proxy for advanced telecommunications capability. Consumers are thinking less about speed and more about having a "frictionless" experience, where they can instantly access content from multiple devices simultaneously.[5] In such an environment, any fixed speed benchmark becomes stale as soon as it established, forcing the Commission to constantly move the goalposts of its Section 706(b) analysis. An evolving speed benchmark also creates uncertainty: when should the Commission step in and exercise its Section 706 authority to remove barriers to deployment, and what network design and technology should providers that accept universal service funding deploy? Therefore, the Council again submits that the Commission should cease using speed as a benchmark for advanced telecommunications capability and instead adopt the more relevant, objective metric, one based on network infrastructure: are all-fiber networks being deployed to all Americans in a reasonable and timely fashion?

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[5] *See* Sean Buckley, "U.S. FTTH deployment rose 13 percent in 2015, says FTTH Council," FierceTelecom (Nov. 16, 2015), citing FTTH Council/RVA, LLC research regarding the availability of FTTH services in the United States, *available at* http://www.fiercetelecom.com/telecom/u-s-ftth-deployment-rose-13-percent-2015-says-ftth-council ("Regardless if it's a 1 Gbps or a 50 or 100 Mbps speed tier, customers who purchase FTTH services that participated in the survey reported 'over 50% higher satisfaction with fiber than with DSL or cable.'").

I. TO MEET GROWING DEMANDS FOR BROADBAND SERVICES, PROVIDERS HAVE ACCELERATED THE DEPLOYMENT OF ALL-FIBER NETWORKS

Consumer preference for high-performance broadband services is increasing and will continue to increase due to two primary factors: (1) increasing demand for online video applications; and (2) an increasing number of devices being used simultaneously.[6] Moreover, consumers residing in rural areas want and need access to the same caliber of broadband services that is available in urban areas.[7]

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[6] In a recent survey of consumers' broadband usage conducted by RVA, LLC on behalf of the FTTH Council, 83.3 percent of consumers surveyed indicated that they typically have between two and four devices running online video applications at the same time. These applications include streaming online video and two-way video chat applications such as Facetime and Skype. These survey results are consistent with general consumer trends for increased bandwidth demand due to the prolific use of two-way video applications. Video resolution quality also is improving and will continue to improve in the next decade, which will further contribute to demand for higher bandwidth, lower latency services. *See* Ed Harstead and Randy Sharpe, "Bandwidth demand forecasting (for TR section 4.2.2)," Alcatel-Lucent (Sept. 2014), *available at* http://www.ieee802.org/3/ad_hoc/ngepon/public/sep14/harstead_ngepon_01a_0914.pdf (last viewed July 19, 2016) (projecting a near ubiquitous availability of high definition video (at least 720p60 HD) by 2024).

Additionally, a recent report issued by Sandvine indicated that Netflix currently accounts for approximately 35.2 percent of downstream traffic in North America. *See* Dan Deeth, "Global Internet Phenomena Report 2015-2016," Sandvine (June 2016), *available at* https://www.sandvine.com/trends/global-internet-phenomena/ (subscription required). Sandvine also projected that by 2020, approximately 80 percent of fixed access network traffic and 63 percent of mobile access network traffic will be caused by real-time entertainment. *Id*.

[7] The FTTH Council previously studied the economic benefits of broadband availability for communities and found that, of the communities studied, "communities with widely available gigabit broadband … enjoyed over $1 billion in additional GDP when gigabit broadband became widely available, relative to communities where gigabit broadband was not widely available." *See* "Early Evidence Suggests Gigabit Broadband Drives GDP," prepared by the Analysis Group for the FTTH Council (Sept. 2014). A link to the study may be found at http://www.ftthcouncil.org/p/bl/et/blogid=3&blogaid=305 (last visited July 18, 2016).

The Commission has a mandate pursuant to Section 254 of the Communications Act that consumers residing in rural areas of the nation "have access to telecommunications and information services … that are reasonably comparable to those services provided in urban areas

Given these demands and preferences, the Council submits that high performance networks will be required to support long-term uncompromised broadband service for consumers, and that all-fiber networks provide the performance and scalability necessary to meet consumer bandwidth demands well into the future. As such, the Commission should focus on ensuring that all-fiber networks are deployed to all Americans as quickly as possible.

Over the last year, the deployment of all-fiber networks has continued to flourish,[8] resulting in vigorous competition between FTTH providers in communities across the country. Large incumbents, cable companies, and new entrants continue to expand their all-fiber footprints throughout communities across the U.S.[9] Regional and rural providers also remain committed to adopting fiber-forward strategies. In a survey of 131 rural broadband providers, NTCA found that 74 percent of rural broadband providers had developed long-term fiber deployment strategies, and 78 percent plan to be able to provide FTTH networks to half or more

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and that are available at rates that are reasonably comparable to rates charged for similar services in urban areas." *See* 47 U.S.C. § 254(b)(3).

[8] Viavi Solutions recently launched an online tool called the Global Gigabit Monitor, which tracks global gigabit Internet deployments. According to Viavi, the United States currently accounts for 61 percent of all global gigabit Internet deployments, 85 percent of which are fiber-based. *See* Andrew Burger, "Report: North America Dominates Global Gigabit Deployments," Telecompetitor (Aug. 15, 2016), *available at* http://www.telecompetitor.com/report-north-america-dominates-global-gigabit-deployments/.

[9] For example, Cox Communications recently announced expansions of its fiber-based gigabit service in parts of Georgia as well as Wichita, Kansas. *See* Karl Bode, "Cox Bumps Cable Speeds, Expands Gigabit Fiber Availability," DSLReports (Apr. 8, 2016), *available at* http://www.dslreports.com/shownews/Cox-Bumps-Cable-Speeds-Expands-Gigabit-Fiber-Availability-136679; Karl Bode, "Cox Continues to Expand Gigabit Broadband Service," DSLReports (Aug. 2, 2016), *available at* http://www.dslreports.com/shownews/Cox-Continues-to-Expand-Gigabit-Broadband-Service-137546. Google also has continued to expand its Google Fiber network, most recently announcing its plans to deploy its all-fiber network in Irvine, California. *See* Tomoya Shimura, "Google Fiber coming to Irvine apartments, businesses," The Orange County Register, (Aug. 2, 2016), *available at* http://www.ocregister.com/articles/google-724326-irvine-fiber.html.

of their customers by the end of 2018.[10] Similarly, regional fiber providers like Consolidated Communications and WOW! Internet, Cable & Phone continue to expand their fiber networks in several states.[11]

States and local communities also have recognized the importance of all-fiber connectivity to power innovation and economic development.[12] For example, in March 2016, the City Council of Centennial, Colorado voted to allocate $5.7 million to implement its Fiber Master Plan in an effort to bring all-fiber networks to the city's more than 100,000 residents.[13] Additionally, Kent County, Maryland contracted in early 2016 with local company FTS Fiber (which in turn has partnered with ThinkBig Networks) to construct a local fiber-optic network and make broadband services available to all homes in the county by the end of 2017.[14]

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[10] *See* NTCA 2015 Broadband/Internet Availability Survey Report (July 2016), *available at* https://www.ntca.org/images/stories/Documents/Advocacy/SurveyReports/2015ntcabroadbandsurveyreport.pdf. The survey further found that 49% of the respondents' customers are already served via fiber to the home connections.

[11] *See* "Gigabit Internet Coming to Roseville," CBS Sacramento (Aug. 22, 2016), *available at* http://sacramento.cbslocal.com/2016/08/22/gigabit-internet-coming-to-roseville/; "WOW Launches Gig Service in 5 Markets," LightReading (Aug. 9, 2016), *available at* http://www.lightreading.com/services/broadband-services/wow-launches-gig-service-in-5-markets/d/d-id/725305.

[12] *See* Jamie McGee, "Chattanooga Mayor: Gigabit speed internet helped revive city," The Tennessean (June 14, 2016), *available at* http://www.tennessean.com/story/money/2016/06/14/chattanooga-mayor-gigabit-speed-internet-helped-revive-city/85843196/.

[13] *See* Alex DeWind, "Fiber Master Plan addresses technology needs and services," Centennial Citizen (Apr. 1, 2016), *available at* http://centennialcitizen.net/stories/Fiber-Master-Plan-addresses-technology-needs-and-services,210658.

[14] *See* "FTS Fiber Begins Construction of 110-Mile Fiber Network to Bring Gigabit Speed Internet to Maryland Residents," The Chestertown Spy (June 14, 2016), *available at* http://chestertownspy.org/2016/06/14/fts-fiber-begins-construction-of-110-mile-fiber-network-to-bring-gigabit-speed-internet-to-maryland-residents/.

As more all-fiber players enter the broadband ecosystem, it will usher in a period of rapid and accelerating increases in demand for higher performance and availability, leaving consumers and communities without fiber networks at a significant technological, social, and economic disadvantage. Consequently, it is critical that the Commission move away from its reliance on a "speed" benchmark and focus instead on the extent to which all Americans have access to all-fiber networks.

II. THE COMMISSION SHOULD FOCUS ITS BROADBAND INQUIRY ON WHETHER ALL-FIBER NETWORKS ARE BEING DEPLOYED TO ALL AMERICANS IN A REASONABLE AND TIMELY FASHION

In its 2010 *Sixth Broadband Deployment Report*, the Commission explained its overarching goal to have a "relatively static point at which to gauge the progress and growth in the advanced services market" to avoid constantly altering the definition of advanced services in its annual Section 706(b) inquiries.[15] However, in the intervening years, the Commission's continued use of a speed benchmark has fallen increasingly out of touch with the market for advanced services. The Commission's proposal to retain, rather than increase, its 25 Mbps/3 Mbps speed benchmark for fixed terrestrial broadband services would only exacerbate the problem.[16] Instead, the Commission should abandon its use of a speed benchmark for "advanced telecommunications capability" and focus on the extent to which all-fiber capability is being deployed to all Americans in a reasonable and timely manner.

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[15] *See Inquiry Concerning the Deployment of Advanced Telecommunications Capability to All Americans in a Reasonable and Timely Fashion, and Possible Steps to Accelerate Such Deployment Pursuant to Section 706 of the Telecommunications Act of 1996, Amended by the Broadband Data Improvement Act et al.*, GN Docket No. 09-137 *et al*., Sixth Broadband Deployment Report, 25 FCC Rcd 9556, 9565, ¶ 13 (rel. July 20, 2010).

[16] *See* Twelfth NOI, ¶ 13.

Setting a standard based on the deployment of all-fiber networks provides a number of advantages over the existing speed benchmark. First and most importantly, using the objective and durable metric of whether fiber has been deployed will enable the Commission to avoid the annual process of deciding whether to move the goalposts of its Section 706(b) analysis. As the Council has repeatedly noted, the Commission's speed benchmark has consistently fallen behind market realities.[17] Indeed, as fiber-enabled bandwidth increases continue to soar, it will become virtually impossible for the Commission to effectively conduct its annual inquiry on the basis of speed.

Second, all-fiber infrastructure is widely recognized as providing far superior performance to other network technologies when compared on the basis of the Commission's proposed broadband metrics (i.e., speed, latency, and consistency).[18] All-fiber networks provide virtually unlimited, symmetrical bandwidth to consumers, and are readily scalable to higher speeds simply by upgrading modulating electronics. Today's all-fiber offerings provide speeds that are orders of magnitude greater than non-FTTH networks, and the delta between FTTH network speeds and the Commission's speed benchmark is ever increasing. Moreover, fiber-to-the-home services typically offer lower latency when compared to other wireline technologies.[19] Additionally, as the Commission has found, all-fiber networks tend to be more consistent than

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[17] *See* Comments of the Fiber to the Home Council Americas on the Tenth Broadband Progress Notice of Inquiry, GN Docket No. 14-126, 13-15 (Sept. 4, 2014); Comments of the Fiber to the Home Council Americas on the Eleventh Broadband Progress Notice of Inquiry, GN Docket No. 15-191, 8-11 (Sept. 15, 2015).

[18] *See* Twelfth NOI, ¶¶ 11-34.

[19] *See* FCC Office of Engineering and Technology and Consumer and Governmental Affairs Bureau, *2015 Measuring Broadband America, Fixed Broadband Report: A Report on Consumer Fixed Broadband Performance in the U.S.* (Dec. 2015) ("2015 Measuring Broadband America Report"), *available at* https://www.fcc.gov/reports-research/reports/measuring-broadband-america/measuring-broadband-america-2015.

other types of networks.[20] Finally, as the Commission considers the appropriate speed benchmark and other appropriate criteria to evaluate the availability of mobile broadband services, it should recognize that fiber is a critical component of the wireless ecosystem. Not only do fiber networks provide vital backhaul to our nation's mobile broadband networks, all-fiber networks do and increasingly will facilitate consumers' increasing reliance on Wi-Fi and eventually 5G to engage with mobile applications and services, such as real-time video.[21]

Third, the value of all-fiber networks extends well beyond the speed and performance that a consumer gets for a given price. The fact is that the virtually unlimited bandwidth of all-fiber networks enables activities that simply are not possible with other network technologies. For example, broadband provided over all-fiber networks brings education, health care, and other social goods into the home through immersive, innovative applications and services.[22] In this way, all-fiber networks drive the ultimate virtuous cycle, one in which bandwidth is no longer a constraint on innovation and the possibilities for application developers are only bounded by

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[20] *See* 2015 Measuring Broadband America Report (finding that fiber-based services met or exceeded advertised download and upload speeds at a level higher than DSL-based services).

[21] The Commission has noted that 80 percent of "wireless" use is Wi-Fi offload, and developments in wireless networks will depend on the availability of fiber backhaul. *See In the Matter of Lifeline and Link Up Reform and Modernization, Telecommunications Carriers Eligible for Universal Service Support, Connect America Fund*, WC Docket Nos. 11-42, 09-197, 10-90, Second Further Notice of Proposed Rulemaking, Order on Reconsideration, Second Report and Order, Memorandum Opinion and Order, FCC 15-71, ¶ 45 & n.134 (rel. June 22, 2015).

[22] *See* Lee Rainie, Janna Anderson, and Jennifer Connolly, "Killer Apps in the Gigabit Age," Pew Research Center (Oct. 9, 2014), *available at* http://www.pewinternet.org/2014/10/09/killer-apps-in-the-gigabit-age/; Michael Theis, "Austin picked to develop apps for ultrafast internet speeds," Austin Business Journal (July 14, 2016), *available at* http://www.bizjournals.com/austin/news/2016/07/14/austin-picked-to-develop-apps-for-ultrafast.html.

their imagination. All-fiber connectivity also provides a tremendous value to homeowners, potentially increasing a home's value by up to 3.1 percent.[23]

All-fiber networks are the critical input in the modern communications landscape and are the only network technology available that can meet consumers' increasing bandwidth needs now and well into the future. The Commission should take the opportunity now to replace its existing speed benchmark with a benchmark based on whether all-fiber networks are being deployed to all Americans in a reasonable and timely fashion.

CONCLUSION

The Commission should in conducting its Section 706 inquiry discard its speed benchmark in favor of a forward-looking standard that recognizes America's need to advance toward an all-fiber broadband ecosystem. The Council submits the new benchmark should be based on the existence of all-fiber networks and whether they are being deployed to all Americans in a reasonable and timely fashion.

Respectfully Submitted,

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[23] *See* Grant Gross, "Fiber broadband access can boost home values," ComputerWorld (June 29, 2015), *available at* http://www.computerworld.com/article/2941875/broadband/fiber-broadband-access-can-boost-home-values.html.